

CTVD MEMBERSHIP UPDATE

For those of you who have been with us since the inception of CTVD, thank you for your continued involvement. For those of you who are new to CTVD, welcome! We now have 68 member institutions... and we are still growing.

5TH ANNUAL CTVD MEETING

The 5th Annual CTVD Meeting will be held at the Gates Foundation in Seattle, WA June 18-20, 2019. Research communities will convene on June 18 and the general meeting will be held June 19 and 20. Stay tuned for program details as we get closer to June. To view the presentations from the 2018 annual meeting, as well as our junior investigator abstracts, please visit <https://portal.ctvd.co/ctvdmeetings/Pages/Seattle18.aspx>

CTVD PORTAL

Have you missed previously recorded CTVD webinars or meetings? Want to view documents from your Research Community? Access to the secure portal is available to CTVD members whose institution has signed the DMSA (data and materials sharing agreement). Visit the CTVD Portal, located in the upper right hand corner of the CTVD home page, <https://www.ctvd.co>, to access all this information and more. Forgot your logon? Contact Ksenia Koon (koon@ctvd.co), CTVD Manager, for help.

UPCOMING VIRTUAL FORUMS

The CTVD holds monthly webinars aimed at keeping our members informed of exciting advances in the field. If you have ideas for topics/speakers for upcoming virtual forums, please send them our way! Please also make more junior colleagues in your group aware of the webinars, if you think these would be useful.

The next CTVD webinar will be held February 21, 2019 at 8am pacific time with a presentation from Dr. Bill Jacobs. The title of Dr. Jacobs' presentation is "Sterilizing Immunity: Is It Possible for *Mycobacterium tuberculosis*?" The dial-in information is below:

Date: Thursday, February 21, 2019
Time: 8:00 am PST/ 11:00 am EST/ 15h00 UTC/ 1600 BST London/ 1700 CEST Geneva/ 1700 SAST Johannesburg/ 2200 ICT Bangkok
Presenter: William R. Jacobs, Jr., PhD
Professor, Department of Microbiology & Immunology
Professor, Department of Genetics
Leo and Julia Forchheimer Chair in Microbiology and Immunology
Albert Einstein College of Medicine
Presentation Title: Sterilizing Immunity: Is It Possible for *Mycobacterium tuberculosis*?
Abstract: The eradication of smallpox is one of the greatest medical interventions in human history. Jenner's use of cow pox encouraged Louis Pasteur and his colleagues to generate numerous versions of attenuated organisms and ultimately, new vaccines. Bacillus Calmette-Guerin (BCG), an attenuated mutant of *Mycobacterium bovis*, which has proven to be effective against childhood Tuberculosis (TB) and in preventing serious cases of TB. Despite the availability of this vaccine and sterilizing chemotherapy, TB remains a tremendous global health problem. The failure to control TB is, in part, the result of the tubercle bacillus acquiring the ability to resist sterilization by adaptive immune responses or bacteriocidal drugs.

This talk will summarize efforts by my lab and others to generate new TB vaccines by genetically engineering a variety of different mutations into virulent *M. tuberculosis* strains or other mycobacteria. While we have been successful in generating immunogenic strains that are much safer than BCG, efforts to obtain sterilizing immunity in mouse models have been unsuccessful. My presentation will highlight advances in deletion secretion systems of *M. tuberculosis* (including ESX-3 and ESX-5) as well as revisiting IKEPLUS and *M. smegmatis* mutants in mouse models. As a comparator, new models of persistence--the capacity of the tubercle bacilli to resist sterilization--will be presented. Ultimately, this work will lead to the hypothesis that killing persistent *M. tuberculosis* is different from killing actively growing *M. tuberculosis*, requiring attention to both to develop a vaccine for sterilizing immunity.



To join this one hour online event on **February 21st**:

1. Go to: [WebEx Meeting](#)
2. Enter your first name, last name, and email address
3. Enter the event password: **CTVD123**

To receive a call back, provide your phone number when you join the event, or call the number below and enter the access code.

Call-in toll-free number (US/Canada) 1-877-668-4493

Call-in toll number (US/Canada) 1-650-479-3208

[Show all global call-in numbers](#)

[Show toll-free dialing restrictions](#)

Access code: **409 474 176**

If you have any problems joining, please send an email to brian@regenworks.com

(Phone: 425.999.2420)

Additional Information

Presenter's Bio

William R. Jacobs Jr. Ph.D., a Member of the National Academy of Sciences and Professor of Microbiology and Immunology and Molecular Genetics at the Albert Einstein College of Medicine, has dedicated his life to the study of *Mycobacterium tuberculosis* and *M. leprae*, the causative agents of tuberculosis (TB) and leprosy, respectively. Using a novel mycobacteriophage vector, termed a shuttle phasmid, he was the first to introduce foreign DNA into mycobacteria in 1987. Shuttle phasmids enabled the development of: 1) the first mycobacterial plasmid transformation system, 2) the efficient transposon mutagenesis, and 3) specialized transduction-an efficient allelic system that enables the generation of a complete set of precise null deletions of *M. tuberculosis*. Moreover, shuttle phasmids enabled the development of reporter mycobacteria phages to rapidly assess drug susceptibilities of *M. tuberculosis* strains. The Jacobs' lab used newly developed genetics to identify the previously unknown target of isoniazid-the cornerstone of TB treatment, analyzed the primary attenuation of the vaccine strain BCG, and engineered *M. tuberculosis*-based TB vaccine strains.

Dr. Jacobs is also one of two leading investigators engaged in the KwaZulu-Natal Research Institute for Tuberculosis and HIV, a partnership aimed at controlling the dual epidemic of HIV/TB that is particularly prevalent in sub-Saharan Africa. He is currently developing rapid diagnostic tests for XDR and MDR-TB using GFP- reporter phages. His work has shifted to focus on persistence in MTB- one aspect that can be considered the greatest impediment to the eradication of TB infection.

On March 21 (also 8am pacific time), Drs. Corey Casper and Rhea Coler will give an "ID 93 Update". Webinar details will be forthcoming.

To view the most recent webinar, visit CTVD portal, located in the upper right hand corner of the CTVD home page, at <https://www.ctvd.co>

RESEARCH COMMUNITY UPDATE

CTVD currently has seven research communities. The BMGF team elects two leaders to each community, and allow these leaders complete freedom to arrange their community's composition, meeting schedules and agendas, as long as they address the primary brief: What are the research priorities in your specific area that absolutely have to be addressed if we wish to arrive at a new, better TB vaccine. We, at the Gates Foundation, champion these research communities and aim to facilitate funding of priorities through discussions with other funders.

If you have questions about any of the research communities, please contact one of the co-chairs of the group:

Aerosol and Mucosal Vaccination: Helen McShane, Rajko Reljic

B-cells and Antibodies: Babak Javid, Simone Joosten

Conventional T cells: Delia Goletti, Jyothi Rengaragan

Donor-Unrestricted T Cells: Tom Ottenhoff, Chetan Seshadri

Innate Immunity: Mihai Netea, Shabaana Khader

Non-Human Primates: Trisha Darrah, Ann Rawkins

Whole Cell TB Vaccines: Roland Brosch, Eric Rubin

EARLY CAREER SCIENTIST AWARD

We believe acknowledgment of contributions of junior scientist is an important activity toward CTVD's overall aim, which is to foster collaboration and cooperation toward innovation for TB vaccine discovery and development. The CTVD Early Career Scientist Award recognizes the efforts of early career scientists who have made significant contributions in TB host-pathogen

biology, immunology, and vaccinology. Multiple awards are given each year; we feature awardees' contributions on the websites and provide each with a grant to attend any TB-related conference: registration and travel (air flight, lodging, and meals) are covered.

Congratulations to our most recent early career scientist awardee, **Dr. Elisa Nemes!** For more information on Dr. Nemes' work, or to submit your application electronically, please visit the link below. Nominations will not be accepted by email or by post. Please submit your nominations today!

<https://www.ctvd.co/Pages/EarlyCareerScientistAward.aspx>

VISITING SCIENTIST PROGRAM

The Visiting Scientist Program also addresses CTVD's overall aim, by enabling scientists from different CTVD member institutions to visit each other for exchange of information and techniques. Travel expenses (air flight, lodging, and meals) for up to three weeks is covered.

Please visit <https://www.ctvd.co/Pages/VisitingScientistProgram.aspx> for more information and to apply!

CTVD ADVISORY COUNCIL

The CTVD Advisory Council is comprised of the co-chairs from each of the seven research communities, plus a representative from TBVI, Gates MRI and IAVI. The Advisory Council meets semi-annually and provides input into CTVD direction.

GH-VAP

The Global Health Vaccine Accelerator Platform (GH-VAP) program provides investigators with access to several specialized research platforms to accelerate vaccine discovery and translation across infectious disease areas. To learn more, visit GH-VAP at <https://www.ghvap.org>

GTBVP

In a project initiated by the Global TB Vaccine Partnership (GTBVP) and funded by the foundation, TBVI and Aeras have developed a fantastic, interactive web tool describing stages of development of new vaccine candidates. The web tool also suggests specific stage gate criteria appropriate for TB vaccines. The output is the result of wide stakeholder consultation. Please refer to the 'The TB Vaccine Development Pathway' at <https://www.tbvacpathway.org/>

PUBLICATIONS OF INTEREST

[Prevention of M. tuberculosis Infection with H4:IC31 Vaccine or BCG Revaccination](#)

Nemes et al. N Engl J Med. 2018 Jul 12;379(2):138-149. doi: 10.1056/NEJMoa1714021.

Do you have an article that you think the CTVD community would enjoy reading? If so, please let us know. We welcome your contributions of publications of interest for upcoming newsletters and our website.

FEEDBACK

If you have questions or comments, please contact the CTVD program manager at kkoon@ctvd.co

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